

Six Flags New England	
SUBJECT: MACHINE GUARDING	SAFETY REFERENCE MANUAL
SECTION: 39	
EFFECTIVE: January 2016	SUPERSEDES: ALL PREVIOUS
29 CFR 1910.211 – Subpart O	

39.1 PURPOSE

To implement procedures to aid in the design, inspection and use of guards on power tools and machinery.

39.2 OBJECTIVE

When power-operated tools or machinery is designed to have guards in place while the tool or machine is operating, these guards must be utilized to reduce the operator's exposure to certain hazards present during this type of work. Each designated employee should be trained in the proper use of such equipment and guards.

39.3 SCOPE

Effective guarding of power transmission and point of operation (area where actual work of the machine takes place) is essential. The most effective guards are those built through good design and ordered as an integral part of the equipment. If guards are insufficient or are not present, then locally constructed guards shall be provided. Machine guarding protects against injury from several sources:

- A. Direct contact with moving parts of machinery.
- B. Work in progress; such as sawing, grinding or drilling.
- C. Mechanical failure.
- D. Electrical failure.
- E. Human error.

39.4 REQUIREMENTS

- A. Machinery movements consist of rotary or reciprocating motion, or a combination of the two. Both types produce crushing and shearing actions which must be considered when working near "nip points" or searching for the danger points of a machine.
- B. Machine guards constructed locally should be fabricated from substantial perforated, screened, expanded, latticed or sheet metal. Under normal circumstances, wooden or plastic guards must not be used in lieu of

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manufacturer's recommended guarding.

- C. One or more methods of machine guarding shall be provided to protect the operator and other employees in the machine area from hazards such as those created by the point of operation, nip points, rotating parts, flying chips and sparks.
- D. All power transmission apparatus, such as gears, belts and pulleys, chain drives, shafts, etc., shall be equipped with complete enclosure guarding.
- E. Moving parts, such as spokes and dangerous projections on moving parts, shall be completely enclosed or otherwise isolated.
- F. Guards shall be free of sharp edges, burrs, or projections, which in themselves can create hazards.
- G. When required, guards shall be designed to permit changing of drive belts or chains, making adjustments, or lubrication. To lessen maintenance time, machine guards should be designed with hinges or removable sections.
- H. When the periphery of the blades of a fan are less than 7 feet from the floor or working level, the blades shall be enclosed (boxed). The guard shall have no opening greater than 1/2 inch.
- I. Machinery designed for a fixed location (drill press, grinder, turret lathe, etc.) shall be securely anchored to the shop floor to prevent movement.
- J. Electrical cords that run power to the machine shall be maintained in excellent condition, free from splice. Electrical cords shall not be ran through walls.
- K. Drill chucks on drill presses shall be maintained in a manner to prevent excessive movement, which could lead to slippage.

All power tools, machinery and similar equipment, whether furnished by the company or by the employee, shall be inspected before each use and maintained in a safe condition.

39.5 POINT OF OPERATION GUARDING

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Point of operation guards shall be provided to prevent the operator from having any part of his/her body in the danger zone during the operating cycle. To supplement point of operation guarding, special hand tools for placing and removing material shall be provided to eliminate the need for the operator placing his/her hand in the danger zone. Such tools shall not be used in place of other machine guards.

39.6 LOCK-OUT/TAG-OUT

All fixed power driven machinery and/or woodworking tools shall be provided with a disconnect switch that can be locked and tagged in the off position. All employees who use this type of machinery shall have been trained in proper lock-out/tag-out procedures prior to beginning such work (See Section 19.0). Once a switch has been locked in the off position, the employee must "try" the switch to ensure that all energy has been released and that there is no power going to the machine. It is also a good idea to unplug the machine.

Unplugging the equipment, however, does not mean that it is locked out (unless a plug lock is attached). This is due to the fact that someone could easily plug the machine back into the socket without knowing why the machine was unplugged in the first place.

39.7 GRINDERS AND ABRASIVE WHEELS

All grinding machines shall be supplied with sufficient power to maintain and spindle speed at safe levels under all conditions of normal operation. These machines shall be equipped with safety guards that cover the spindle end, nut, and flange projections, except for machines that are designed as portable saws. The machine shall be kept/operated in a safe proximity from flammable liquids.

Floor and bench-mounted grinders shall be provided with safety guards and work rests which are rigidly supported and readily adjustable.

Work rests shall be maintained, adjusted and kept at a distance not to exceed 1/8 inch from the surface of the grinding wheel to prevent the work from becoming jammed between the wheel and the work rest. This could cause the wheel to break and possibly cause an injury to the operator. Grinding wheels shall fit freely on the spindle and shall not be forced into place. The spindle nut shall be tightened just enough to hold the wheel in place.

All employees who use grinding machines shall wear eye protection and utilize the permanently attached eye shields located directly above the wheel on the grinding machine. These eye shields shall be cleaned and maintained on a regular basis. Any eye

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shield that is found to be cracked and/or broken shall be replaced immediately.

39.8 CIRCULAR SAWS

All portable, power driven circular saws shall be equipped with guards above and below the base plate or shoe. The upper guard shall cover the saw and to the depth of the teeth, except for the minimum arc required to permit the base to be tilted for bevel cuts. The lower guard shall cover the saw to the depth of the teeth, except for the minimum arc required to allow proper retraction and contact with the work. When the tool is withdrawn from the work, the lower guard shall instantly return to the covering position.

Automatic feeding devices shall be installed on machines whenever the nature of the work will permit. Feeder attachments shall have feed rolls or other moving parts covered or guarded to protect the operator from hazardous points.